Autonomic dysreflexia; a medical emergency

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J R Soc Med 2007;**100**:382–383

Autonomic dysreflexia is a medical emergency commonly occurring in patients with spinal cord injury at levels T6 and above.

CASE REPORT

A 42-year-old woman presented to casualty with a 4-hour history of severe headache. She did not have photophobia, neck stiffness or vomiting and there was no noticeable rash. Her past medical history included spinal cord injury at the C5–6 vertebra few years earlier, which left her paraplegic with indwelling urinary catheter.

On arrival in casualty she was unwell, with a pulse rate of 98 beats per min and supine blood pressure of 156/90 mmHg. Her temperature was 37.9°C. On clinical examination, her Glasgow Coma Score was 15/15 and she was paraplegic with a sensory level at T2. She did not have any signs of meningitis and her cardiovascular and respiratory examinations were normal. She was initially treated with simple analgesia for headache, which did not improve her condition. Her urine dipstick was positive for blood (4+) and leucocytes (3+). Her full blood count showed leucocytosis of $12\,000 \times 10^9$/L and CRP was elevated at 68 mg/L. It was noted from her previous hospital notes that her blood pressure since her spinal cord injury had ranged from 70/50 to 90/60 mmHg throughout.

With her history of spinal cord injury, headache, relative hypertension and possible urinary tract infection, it was suspected that she had autonomic dysreflexia and was started on nitrate infusion and her blood pressure was lowered to 94/60. Within few hours of starting the nitrate and lowering the blood pressure her symptoms improved and her headache disappeared. Her urinary catheter was changed with antibiotic cover and she was given a course of oral antibiotics.

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DISCUSSION

This is a typical case of autonomic dysreflexia precipitated by urinary tract infection in a patient with spinal cord injury. Hypertension is the most common presentation of autonomic dysreflexia, usually precipitated by bladder or rectal distension. This condition, if not treated early, will lead to uncontrolled hypertension and death due to brain haemorrhage. It usually occurs in patients with spinal cord injury. It may also result from non-traumatic causes, such as spinal cord tumour[1] or after neurosurgery above the level of T6.[2] It is also associated with medical conditions such as multiple sclerosis[3] and catecholamine-secreting tumours.[4] It is not clearly known how common autonomic dysreflexia is in patients with spinal cord injury.

Even though the mechanism is not clearly established, the accepted theory relates to an exaggerated reaction of sympathetic pre-ganglionic neurons to afferent stimuli.[5] The common stimulus for autonomic dysreflexia is bladder and rectal distension, but it can also be precipitated by urinary tract infection (as in our case), deep venous thrombosis, ingrown toenail, insect bite, burns, contact with sharp object, splints, skin irritants, hot or cold stimuli, dysmenorrhea, pregnancy, orchitis, epididymitis, anal fissures, hemorrhoids, fractures, acute abdomen syndromes or surgical interventions.[6–7]

The significant signs and symptoms of autonomic dysreflexia are paroxysmal hypertension, compensatory bradycardia, headache, flushing, cardiac arrhythmia, nasal congestion, sweating, and anxiety. Although bradycardia is a common finding, tachycardia is not uncommon, as the response varies between people. Atrial fibrillation is rare but recognized in autonomic dysreflexia.

The outcome of management depends on the early recognition of the condition and lowering the blood pressure by removing the precipitant. Patients with high-grade paroxysmal hypertension must be treated differently from patients with low grade or chronic autonomic dysreflexia, which can become high grade very quickly. The first step of treatment is to sit the patient upright, thus producing an orthostatic decrease in blood pressure. This is followed by a search for a reversible precipitant cause and appropriate action to remove said cause. If these does not solve the problem and lower the blood pressure, pharmacological treatment should be started. Nifedipine is one of the commonly used drugs in autonomic dysreflexia and in acute episodes intravenous nitrates, hydralazine or diazoxide can be used.

Competing interests None declared.

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